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PATENT ABSTRACTS OF JAPAN

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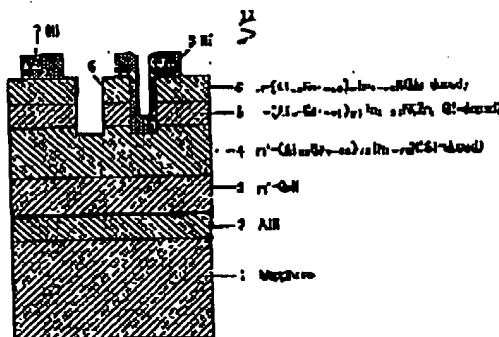
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(54) METHOD FOR MANUFACTURE OF GROUP III NITRIDE SEMICONDUCTOR

(57)Abstract:

PURPOSE: To make hydrogen leave from a film and to prevent nitrogen from leaving the film by substituting atmospheric gas for an inactive gas other than H₂ gas and NH₃ gas until a room temperature is reached after the vapor growth of group III nitride semiconductor.

CONSTITUTION: AlN buffer layer 2 is formed on a sapphire substrate 1 and then a high-carrier concentration n⁺ layer 3 consisting of GaN, a high-carrier concentration n⁺ layer 4 consisting of (Al_x2Ga_{1-x})₂In_{1-y}2N, a light-emitting layer 6 consisting of (Al_x1Ga_{1-x})₂y1N, and p-layer 6 consisting of (Al_x2Ga_{1-x})₂In_{1-y}2N are formed on the buffer layer 2. Then, the supply of organic metal gas is stopped and the inside of a reaction room is exhausted in vacuum and then the inside is naturally cooled to a room temperature by introducing N₂ gas or inactive gas, thus enabling the p-layer 6 to be p-type semiconductor with a Hall concentration of $6 \times 10^{17}/\text{cm}^2$ and a resistivity of 20 Ωcm . As a result, by improving the crystallizability of a semiconductor thin film using AlGaInN, the light emitting intensity of a light-emitting element using the semiconductor can be improved.



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